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The American Fertilizer

Vol. 101 JULY 29, 1944 No. 2

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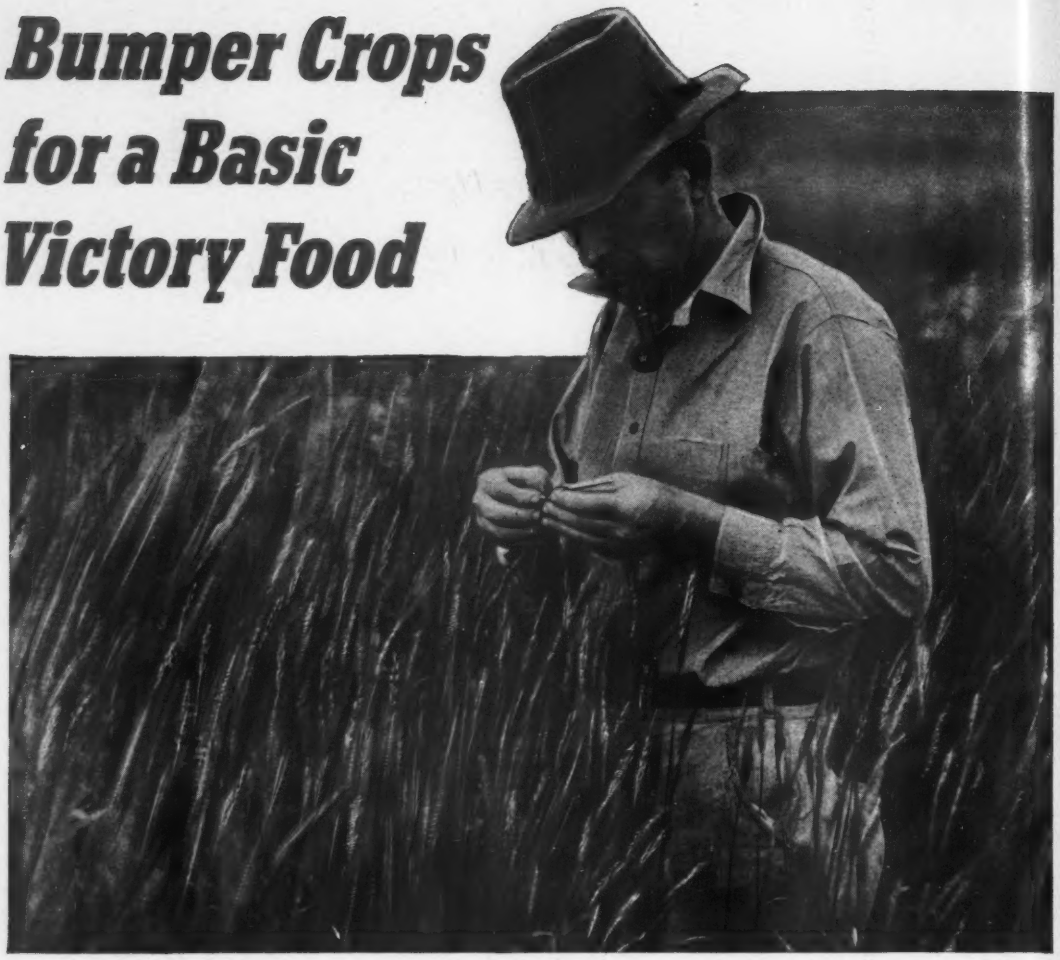

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...THE...

AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before"

Vol. 101 JULY 29, 1944 No. 2

Post-War Relations Between Government and Industry*

By CHARLES J. BRAND

Executive Secretary and Treasurer, The National Fertili er Association

THIS is the twentieth annual meeting of The National Fertilizer Association that was set up in June, 1925, at White Sulphur Springs, West Virginia, incorporating within it the old Southern Fertilizer Association. The by-laws then adopted provided that each year there should be a fall convention of the industry in Atlanta, Georgia. Last November, emergency conditions forced the omission of the usual fall meeting. So it is fitting that this annual meeting should be held in Atlanta, not only because it is spiritually a compliance with the by-laws but because we are in the heart of the territory that uses more than 50 per cent of all the commercial plant food consumed in the United States.

It is fitting too for another reason that this wartime annual meeting should be held here. Atlanta's central location, in the very midst of so large a fraction of our membership, makes attendance possible without adding unduly to the strain on our transportation system. All of our planning has contemplated appropriate cooperation with the earnestly expressed desire of the Office of Defense Transportation that meetings be held solely for business purposes, primarily to help win the war and naturally, in connection therewith, to plan for the transition from war to peace.

It is appropriate to remind you that if the predecessor National Fertilizer Association had continued in uninterrupted independence, it would now be celebrating the fiftieth year of its existence. It was established in 1894. Going back still earlier, we have in our Association library in Washington an "Abstract of the Minutes of the Meeting of the National Fertilizer Association, August 29, 1883," held at Baltimore, Maryland. Not many American trade associations can hark back to more than 60 years of useful service.

Even in that earlier period, prior to 1883, Government intervention already had presented itself as an industry problem. It was not serious, and related to the matter of State legislation in the form to which we now commonly refer as "State fertilizer control laws." Just then the use of German potash in our agriculture was beginning to grow. Consumption probably amounted to 25,000 tons in 1883. The technique of chemical analysis was so undeveloped that four reputedly experienced chemists reported the content of potash in a single fertilizer sample with the following variations: 0.50, 0.51, 1.28, and 1.65. Two chemists, evidently using too much heat, failed to find any potash at all in the sample on their first run.

I repeat this ancient story only to give point to this statement: Government has long found it desirable to intervene in some phases of our business. For the most part in the past this intervention, while sometimes inconvenient, or possibly annoying, has nevertheless been helpful in the long run.

As long ago as 1883, nineteen States already had passed fertilizer laws. Now every State in the Nation except Nevada has such legislation, affording adequate protection to fertilizer manufacturers and to farmers. Still, comes Congressman William Lemke, one-time

*An address at the meeting of the National Fertilizer Association, Atlanta, June 21, 1944.

Farmer-Labor nominee for President of the United States, and proposes Federal control legislation, with another set-up for doing a job that is now being done efficiently and satisfactorily under State laws administered by capable State officials. Federal entry into this field would serve no useful purpose. Its principal effect would be to add to the expense of doing business and to the price farmers would have to pay for their fertilizer. Incidentally, Mr. Lemke's State of North Dakota used only 3,000 tons of fertilizer in 1943.

I must get back to my discussion of post-war relations between Government and industry. In the title of this address the term "industry" is intended to cover the whole range of private business. It is my purpose to discuss in some detail only those phases of Government relations to business that touch primarily on our own industry.

The extent to which Government should invade the fields of private business, or assume direction of it, has been a growing problem for many years. It will never be less of a problem, no matter which political party is in power. The difference will be one of the tempo of invasion. During the past twelve years it might be said that that tempo has been a swift allegro. Many of us hope that in the near future it will slow down to the spirit of a conservative andante—but certainly no less bent upon serving the true interest of the people of the country. As many of you know, I spent almost twenty years of my active life in the Federal service. I remember quite clearly, when I went from Chicago to Washington to take up research work in the Department of Agriculture, that the worst spending sins of our Government, judging from the press complaints of the day, were mild pork-barrel appropriations for rivers and harbors, and for such things as locks and dams on a few streams that were little navigated; badly located Navy yards, in harbors too shallow for a battleship; and free Congressional seed distribution. These were unbelievably innocuous fiscal vices in the face of what confronts us today. Then they stemmed from the legislative and not from the executive branch.

The terrific waste of war in lives, property, goods, and money we accept, despite the fact that better management and correct discipline could avoid a tremendous part of it. Avoidable waste and unsound spending of every kind are little short of criminal. They burden the future of progress with a staggering load of debt. I fear that the tip-off that inaugurated the present debt and spending policy was the harmless-sounding phrase, "the silly dollar-sign." It was uttered by the most powerful voice in the land, and months before the unavoidable exigencies of war bore down upon us. Its far-reaching effects will be evident for a generation at least; conceivably far longer because of the terrific taxation that confronts the nation now and in the future.

Specific Problems in the Government's Relations to the Fertilizer Industry

Before outlining any recommendations or suggestions, I want to make some factual statements based upon such information as is available to the public concerning some of the specific Government activities and properties that constitute a problem for our industry.

1. Distribution of Fertilizers by the Agricultural Adjustment Agency.

Yesterday we heard on our forenoon program a very constructive and interesting address by Mr. Dodd, the chief of the Triple-A. He is an outstanding farmer in the State of Oregon and has been in the Federal service four or five years, which, in these days of constantly changing personnel, makes him a veteran.

The so-called grants-of-aid program was started in 1938 as a soil conservation measure. During that year AAA distributed almost 67,000 tons of superphosphate. In 1940 more than 444,000 tons were distributed, and in 1942, 1,195,000 tons. In 1943 there was a distinct recession because of the increase in the regular commercial demand for superphosphate, which the War Food Administration directed should be supplied first. This decreased the supplies available to the Agricultural Adjustment Agency for its grants-of-aid program. Even so AAA distribution totaled nearly 863,000 tons.

In some States a new plan of distribution, commonly referred to as the "Purchase Order Plan," is being tested by the AAA. Under this plan cooperating farmers obtain their fertilizer from local suppliers on orders issued by AAA after establishment of a fair price for each area.

This year the governmental agencies are demanding a tremendous increase above the all-time highs of recent years in the production of superphosphate. The purpose is to assure a sufficient supply over and above regular commercial demand, so that the Government may have 1,500,000 to 2,500,000 tons for its distribution program.

The 1942 AAA distribution was approximately 12 per cent of the total distribution of commercial fertilizers of all kinds in that year

through both private and governmental channels.

The extent of this engaging in the activities of our industry may not seem to some to be serious. I use the lime industry as an example of what can happen: In 1938 the total consumption of agricultural lime in the United States was approximately 7,048,000 tons, of which AAA distributed 0.54 per cent. In 1942 total distribution amounted to nearly 17,886,000 tons, and AAA distributed 70.6 per cent of it. Certainly when the Government takes over the distribution of more than two-thirds of an important farm supply, other agencies engaged in supplying the farmer may well be seriously concerned as to what the future may have in store for them. In addition serious question may arise as to whether such a tremendous increase not distributed in response to usual economic impulses is used wisely or in some cases at all.

Congress has made an appropriation of some $290,000,000 for the current year for the Soil Conservation program. It has been estimated that $75,000,000 of this total might be used for the purchase and distribution of fertilizer. Should this occur now or in any early future year, the dislocation and disruption in our industry cannot be other than severe. It is to be remembered that in normal times the total sales value of all the commercial fertilizer used by American farmers is less than $300,000,000.

Without deprecating or belittling the definite benefits that have come from these governmental programs, it is my considered opinion that equal good can be obtained by following procedures that do not result in the invasion of the fields of private industry. With some 50,000 dealers and agents who have served the farmers of the nation throughout the years of development of fertilizer use, it seems rather hard to justify the Government's engaging in this particular field of private endeavor. Furthermore, the temptation to use huge Government appropriations to promote control, regimentation, and changes in the economic order may well constitute a threat to the future of true democracy in America as we have known it for a century and a half.

2. The Production and Distribution of Fertilizer by the Tennessee Valley Authority.

The mere fact that Government agencies foster and promote a given project does not make it sound or desirable. The TVA distributed its first fertilizer, in the form of concentrated superphosphate, in its demonstration program in the year 1935. Less than 2,000 tons of Government-made phosphate were distributed. In 1942 the amount had risen to nearly 32,000 tons. This is the equivalent of nearly 100,000 tons of normal superphosphate.

The war has curtailed the rapidity of increase in TVA production of superphosphate, but in the fiscal year that ended June 30, 1943, 60,200 tons of concentrated superphosphate were produced and 77,300 tons were shipped. Of this total 54,000 tons were for Lend-Lease. In addition 7,300 tons of calcium metaphosphate, a relatively new and not yet commercially demonstrated product, were manufactured.

In a recent book by Prof. C. H. Pritchett, of the University of Chicago, entitled *The Tennessee Valley Authority*, it is stated that:

"Due to the non-commercial nature of the (fertilizer) program, it has escaped many of the controversies with private industry which have marked the TVA power program. In recent years, however, the TVA production has become so considerable that commercial fertilizer sales have become affected, particularly in the valley area, and the objections from industry are increasing."

This statement is based upon my testimony at the hearings conducted by the special joint committee on the investigation of the Tennessee Valley Authority in 1938. Francis Biddle, then general counsel of the joint committee and now Attorney General of the United States, personally conducted the hearings. At that time, in the course of nearly forty pages of testimony, I tried to convey the facts and views of our industry as a whole at a juncture when Government expansion in the private field was beginning to assume ominous proportions. Wendell Willkie, who preceded me on the stand, had made a powerful presentation of the interests of the electric power industry. I may sadly comment that neither of us seems to have had too much effect.

Continuing his text, Professor Pritchett says:

"The line taken by the spokesmen for the fertilizer industry is that they appreciate research which the TVA has the money to undertake though they feel that extravagant claims have been made for some of the new processes developed; and they admit that the TVA educational and promotional work is beneficial to the industry as a whole. They do not, however, like the prospect of increasing Government competition with their business and they feel that their emphasis on mixed and balanced fertilizers is better for the

(Continued on page 24)

Planning for Post-War Agriculture*

By N. E. DODD

Chief, Agricultural Adjustment Agency

IT'S a pleasure to be your guest today. I recognize several familiar faces in the audience—the faces of persons who have long been sincerely interested in the problems of the farmer and his land. When Charles Brand invited me to this meeting, it brought back many memories. I recall those days back in the twenties and associations with Charles Brand, Chester Davis, the late Senator McNary, and others, in studying the serious problems existing for agriculture at that time in the McNary-Haugen days. Charles Brand is still interested in trying to help farmers with their problems. I am here to talk about some of the problems facing farmers and the nation today.

We Americans are deeply proud of our fighting men and their hard-earned victories. We respect our fighting men, and feel that the best is none too good for them.

But when a soldier fights, his country's soil fights with him. And we should be equally proud of, and bear equal respect for, the rich soil which has made our fighters the best fed army in the world.

Because the soil is so vital to our national welfare, whether in war or peace, our land should get no less consideration and care from us than our soldiers. When a man becomes exhausted in battle, we give him a rest. If he is wounded or otherwise put out of action, we give him the best medical care and drugs available, and we rehabilitate him insofar as possible so that he may be a useful citizen.

We should and must do as much for our soil if we are to protect the heritage and future of our country. Like a tired soldier, soil which is run down or exhausted must sooner or later get a rest. Wounded soil, like wounded men, must receive special care and treatment. And incapacitated soil must be rehabilitated through soil-building practices which restore its productivity.

History proves the wisdom of such a course. Many civilizations of the past disintegrated when their soils no longer were able to support them. Here in the United States we have been richly endowed with land. Our forefathers and even many of our own generation have exploited this rich soil. We didn't feel the effects of this exploitation for a while—we were growing so fast. But eventually this practice of exploitation led our nation into serious trouble. In the disastrous economic collapse which struck agriculture after the last World War, farmers became sharply aware of what had happened. By 1932, economic depression had gripped the rest of the country. And by that time United States agriculture and its people were virtually bankrupt. An extended period of low prices and a desperate attempt to maintain farm income through greater production drained the land of much—and sometimes all—of its productivity.

In the early thirties, national farm programs helped the American farmer get back on his feet. Prices were stabilized. Production was adjusted to the needs of current consumption plus allowances for exports and reserves in the Ever-Normal Granary. And most important for the long-time welfare of the nation, assistance was given farmers in carrying out soil-conserving practices. Dust bowls were reclaimed. Much erosion was halted. Pretty soon crop yields began to increase, helped in large measure by increased practice of soil conservation, including the application of fertilizers.

So when Pearl Harbor came, American agriculture was prepared. We had large stockpiles of basic farm commodities. We had more corn and wheat than ever before in our history, and plenty of cotton and other fibers. Livestock numbers were climbing to all-time record levels. We had great reserves of food—all built up without financial ruin to the farmer. In fact, farm income and the general economic status of the farmer had been substantially improved.

Besides all this, the productive capacity of our soil had reached an all-time high—the soil-building program operated during the previous nine years was proving to be a sound investment. Since 1937, when the conservation program first became fully effective, crop yields in this country have increased almost one-fourth above the 1923–32 average. Who could ask for a better dividend—particularly

*An address before the 20th Annual Convention of the National Fertilizer Association, Atlanta, June 20, 1944.

in time of war—from the productivity we stored in our soil bank during years of peace?

Today we are drawing upon those soil reserves to get the tremendous amounts of food and fiber which are playing such an important part in winning the war. Since we entered the war, our conservation program has emphasized practices which will bring about immediate increases in production. Before a practice is approved under the program, we ask: Will this practice increase yields of farm products needed for the war effort? Will it improve the fertility of the soil? Will it maintain or increase range and pasture? Will it make best use of our water? Our reports indicate that farmers today are carrying out more soil- and range-building practices than ever before.

From the beginning, Triple-A has played an important role in the conservation program by providing assistance to farmers who want to carry out soil-and range-building practices. One method of assistance in which the fertilizer industry has cooperated has been in furnishing soil-building materials such as phosphate, potash, and lime.

CONSUMPTION OF FERTILIZER AS NITROGEN, PHOSPHORIC ACID AND POTASH*
(Thousands of tons)

	Nitrogen	P_2O_5	K_2O
1935	306	593	302
1936	351	673	347
1937	411	795	415
1938	384	844	394
1939	390	883	405
1935-39 (Average)	368	758	373
1940	413	887	427
1941 (Natl. Def. Adv. Com.)	456	985	461
1941-42 (Start of War)	420	1,044	521
1942-43	460	1,114	590
1943-44	635	1,300	600
1944-45 (Outlook)	675	1,600	725
1944-45 Increase over 1943-44	6.3%	23.1%	21%
1944-45 Increase over 1941-42	60.7%	53.3%	39.2%

*Includes Hawaii, Puerto Rico and Alaska.

The application of these materials is one of the quickest and best ways of increasing yields of many crops. Farmers recognize this. Last year our farmers used more fertilizer than in any previous year. They are now using three times as much limestone, twice as much phosphate and nitrogen, and more than half again as much potash as they did in 1938.

I want to speak a moment on the interest of Triple-A in the use of fertilizer and limestone on our farms. Our job is simply this—first, to promote maximum use of these important soil-building materials, and second, to see that they are distributed as widely and as efficiently as possible.

We don't want to interfere with the business of the fertilizer industry. In fact we want to increase your business. When Triple-A purchases fertilizers, we are, in effect, providing price supports for your industry. These supports are similar to the price supports for farmers which have encouraged greater food production. We don't believe there is anywhere near enough fertilizers and limestone being produced to meet the minimum requirements of our soil.

Fertilizer Making Food Program Possible

Both laboratory *experiments* and farmer *experience* have demonstrated the benefits resulting from the application of lime and fertilizers to impoverished soil. Such applications even made good soil better. There not only is a difference in the volume of crop or forage output, but the enriched soils yield better-quality products than soils where no applications are made. We find, for example, that cattle, sheep, and other livestock grow better and produce better on forage and grain from fertilized soils.

As a result of the soil-building and conservation programs, coupled with improved varieties of crops and labor-saving methods, American farmers are producing food in amounts which some people said were impossible. In fact, predictions were made that the American dinner table was going to be bare—we even heard predictions of famine.

Despite all this talk, there are today fewer underfed people in the United States than at any time in our history. Luxury foods are hard to find at times. But going without a few luxuries is a long cry from famine.

This happy state of plenty of food hasn't been accomplished without difficulties. Farming, like other lines of production, has its wartime problems. Farmers have had to stretch limited supplies of machinery and labor. The weather has not always been ideal—we've had droughts and floods. Transportation has been troublesome. Yet with all these handicaps, 1943 was the seventh consecutive year that farmers have broken all previous records of food production. And the outlook right now indicates that even last year's production record may be surpassed in 1944. Your industry has played a large part in that record.

Probably we'll never be able to realize the full meaning of this remarkable production. Our civilians are eating as well or better than they did before the war. Our fighting forces

are the best fed of any in the world. In addition—and I want to stress this point—we have been able to share a part of our production with our fighting Allies. Products of our soil helped sustain the British in their dark hours after Dunkerque. We have shared seeds for the planting of crops in liberated areas. Rehabilitation of a liberated area does not really begin until the people resume their own production of food.

Some time ago I heard a general in the Russian Army who had been at Leningrad and Stalingrad tell of the importance of American food to the Russian Army. During the long siege of Leningrad, the people and the troops there were cut off from regular supply routes. Food—concentrated and well packed—had to be flown in by airplane. Some of this food came from American farms. Leningrad did not fall. Stalingrad did not fall. Russia stayed in the war. History may record the successful defense of Stalingrad—to which American food and equipment made a contribution—as the beginning of the end for the Nazis.

This sharing of food requires the use of many ships. But there are times during a war when military operations require an extra large number of ships and previous plans for shipment of food are upset. We have seen this happen recently in preparations for the invasion of France. Shipping food is only one of the many uncertainties of war. All uncertainties, including weather, must be taken into account in considering our food supplies and at times combinations of them cause some unusual situations. The meat available for civilians during the past few weeks or the tremendous supply of eggs are good examples resulting from a combination of happenings which could not be foreseen.

The Post-War Situation

I am sure that you in the fertilizer industry are thinking beyond the present to the days when wartime demands upon our farmers and our soils will taper off. We know that right now we are taking from our land more than we are putting back. This means we are drawing upon our reserves. We will continue to do so as long as necessary. But we can't draw indefinitely—any more than we can keep writing checks against our bank account without making deposits.

Some people tell us not to worry too much about the problems of peace—to win the war first. But those of us connected with farming and with the land know that the restoration and maintenance of our soil is actually a part of what our men overseas are fighting for. The boom of cannon will cease, but the war for freedom will not be finished until we have won the battle against soil depletion. We must win this final battle to insure abundance for our children and our children's children.

We can't fill in all the lines of a blueprint for the future, but some of the important lines are there for us to see. One thing seems certain—we will have to give additional attention to our soil and at the same time make the conversion to peacetime production in an orderly manner since great national, regional and local readjustments will take place. Needs for various products and price relationships will change.

Our place in the international picture will strongly influence what we will produce, how much, and where. But no matter what this picture turns out to be, this country and every other country will be faced with the fundamental need for restoring and maintaining its soils.

You people will be affected by the reconversion of agriculture. Your understanding and cooperation will help determine the smoothness with which this reconversion progresses. The changes to peacetime conditions will in many cases create stresses as great as in any other line of production.

In the reconversion of agriculture, we are sure that the acreage of inter-tilled crops such as soybeans will have to be reduced and the acreage of grass and legumes will be increased. This development will affect the fertilizer industry because crops for conservation require different fertilizers than crops sold from the farm. From a business standpoint, the fertilizer industry need not fear the effects of such reconversion, if the industry will take advantage of the groundwork laid by Triple-A in creating a still unsatisfied demand among farmers for fertilizers. Without attempting to anticipate your problems or your reactions, I am confident that the members of this organization will pattern their operations to the needs of peace just as effectively as they are contributing to requirements of war.

In considering post-war agriculture, I think we should set as our goal an agricultural pattern which will produce the variety of foods necessary for the building of a strong and healthy population. I cannot help but think that a cereal-livestock-legume production combination will be most efficient in maintaining our soils and providing a properly balanced diet.

(Continued on page 26)

OPA Issues Revised Fertilizer Price Regulations

The Office of Price Administration, on July 26th, issued "Second Revised Maximum Price Regulation 135, as amended," effective August 1, 1944. This amended regulation is a consolidation of the previous Second Revised Maximum Price Regulation 135 and Revised Maximum Price Regulation 108 (which it supersedes and which was revoked simultaneously with the issuance of Second Revised MPR 135, as amended). It applies, throughout the continental United States, in all sales of domestic and imported mixed fertilizer, superphosphate, potash, and nitrogenous fertilizer materials to consumers. "Consumer" includes the Agricultural Adjustment Agency when purchasing superphosphate from nonproducers. In the case of victory garden fertilizer and specialty fertilizer, sales to dealers are also covered. Exceptions: (1) emergency sales to the United States and its agencies; (2) export sales.

Experience during the past year has convinced OPA that the system of overall dollars-and-cents maximum prices is the most desirable form of price control for fertilizer. Consequently, that system has been continued in the amended regulation, with modifications and changes chiefly in the interest of clarification and simplification. With minor exceptions, the level of maximum prices is unchanged from the levels established by Second Revised MPR 135 and Revised MPR 108.

Uniform nation-wide maximum prices for victory garden fertilizers and for specialty fertilizers are established in Appendix B.

Maximum prices for fertilizers other than victory garden and specialty fertilizers are contained in Appendix A, in 18 schedules each applicable in a single geographic area. In general the price structure conforms to the customary pricing practice in the particular area involved.

Grades. The amended regulation specifies maximum prices for all grades approved by WFA for use in each State. As to the States in which multiple grades are permitted by WFA, specific maximum prices are also established for multiple grades normally sold. A manufacturer who wishes to sell any grade not listed in the amended regulation must apply to OPA in Washington for the establishment of a maximum price for such grade.

Premium brands. A manufacturer may continue for a premium brand (as defined in the amended regulation) manufactured and listed by him during the period February 16–20, 1942, the differential he then had in effect for such premium brand.

Special ingredients in other than premium brands. Charges that may be added for specified quantities of certain specified ingredients in mixed fertilizer, superphosphate, or potash are listed.

Package differentials. Maximum base prices for mixed fertilizer, superphosphate, and potash in all areas are for goods in 100-pound (80 or 100-pound in Midwest) paper bags. Additional charges may be made for use of textile bags or barrels, but such differentials do not apply to delivery of nitrogenous materials in any area.

Bulk deliveries. A deduction must be made, in all areas, if delivery of mixed fertilizer, superphosphate, or potash is made in bulk.

Eastern superphosphate sold in the West. Special maximum prices are established for superphosphate and triple superphosphate produced east of the 100th meridian and sold and delivered in the States of Idaho, Wyoming, Nevada, Colorado, Utah, Montana, Washington, Oregon, California, and Arizona.

What area price governs. Mixed fertilizer (except 6–30–0 and 10–20–0) shipped into Idaho, Wyoming, Nevada, Colorado, Utah, or Montana from other States may be priced at the f. o. b. factory price for the State of origin plus transportation cost—such price and cost must be shown on the invoice. All other sales in this area, and all sales in all other areas, are governed, regardless of the seller's location, by the maximum price for the area in which the point of delivery is located.

Nitrogenous materials. In New England, the Middle Atlantic States, the Midwestern States, and the far Western States, maximum prices are established on the same basis as maximum prices for mixed fertilizer. In the Southeastern and Southern States maximum prices are f. o. b. applicable basing point.

Adjustable pricing. (1) Any person may agree to sell at a price which can be increased up to the maximum price in effect at the time of delivery; but (2) no person may, without authorization by OPA, deliver or agree to deliver at prices to be adjusted upward in

accordance with action taken by OPA after delivery.

Keeping records. Every person making a sale of 250 pounds or more to a consumer, after August 1, 1944, must keep his customary complete and accurate records of such sale, for inspection by OPA, for so long as the Emergency Price Control Act of 1942 is in effect.

Filing copies of price lists. Every manufacturer of mixed fertilizer, superphosphate, potash, or nitrogenous fertilizer materials may file with the appropriate regional office of OPA three copies of any price list issued by him in connection with sales to consumers and dealers.

Posting prices. Each dealer or agent must post at his place of business a list of his consumers' maximum prices. Each manufacturer selling direct to consumers must post at his office, plant, and warehouse his consumers' price list in effect for the area thereby served.

Licensing. The provisions of Licensing Order No. 1, licensing all persons who make sales under price control, are applicable to all sellers subject to the amended regulation.

Miscellaneous provisions. The amended regulation contains provisions, similar to those in the previous Second Revised MPR 135, prohibiting selling or buying at higher-than-maximum prices and as to violations and amendments.

Increase in World Phosphate Program

The program for world utilization of phosphate rock, most of which is required for agricultural purposes, calls for a world production of 10,000,000 tons in the agricultural year beginning July 1, 1944, and extending through June 30, 1945, while goals for the following year, 1945–46, will be raised to 12,767,000 tons, the War Production Board has reported.

Prewar consumption of phosphate rock was approximately 10,700,000 tons. The increase in requirements for 1945–46 is chiefly for the rehabilitation of liberated European countries, WPB said.

Phosphate rock mines in North Africa will be expected to furnish a substantial portion of the raw material to be converted into superphosphate fertilizers to meet European requirements, representatives of the Chemicals Bureau recently informed members of the Florida Phosphate Rock Producers Industry Advisory Committee.

Reporting on the condition of mines in Morocco, Tunisia and Algeria, a representative of the North African Economic Board told the committee that the chief bottlenecks to maximum production of phosphate rock were shortages of labor, equipment and rail transportation. In many cases ports have been severely damaged, loading and unloading facilities torn up, and channels filled with obstacles.

Current annual export of phosphate rock from North Africa is approximately 2,500,000 tons, as compared with a prewar average of 4,000,000 tons. If adequate equipment were made available and sufficient labor recruited, the prewar average of 4,000,000 tons could possibly be attained for export in the agricultural year 1944–45, the NAEB representative said.

Increased production required for the transition period could best be obtained in the United States, inasmuch as production difficulties are more easily surmountable here than in North Africa, the committee said. A recommendation was made by them to WPB that a survey be made of the Florida phosphate rock industry to determine production potentialities before any quotas be established.

The committee said that if additional equipment and more labor were made available to them, the hydraulic method of mining could be utilized to replace the presently used dry mining technique, substantially boosting mine output.

The industry-wide raise in wages, recently approved by the War Labor Board, has materially improved the labor situation in the industry.

Watmough to Manage New Summers Plant

Announcement is made by J. E. Totman, president of the Summers Fertilizer Co., Inc., of the appointment of William N. Watmough, Jr., as Production Manager of Summers and its associate company, Northern Chemical Industries, Inc., plants at Searsport, Maine.

Mr. Watmough has had many years fertilizer manufacturing experience. For 17 years, he was with G. Ober & Sons, Baltimore; and for the past several years, he has been Assistant Works Manager at the Curtis Bay Plant of Davison Chemical Co.

Production of sulphuric acid and superphosphate at Summers and Northern Chemical Industries plants is expected to commence August 1st.

IT MAY BE

By SAMUEL L. VEITCH

CUT-BACKS OF WAR ORDERS

At last the Military heads are conceding there will be cut-backs in war orders. It may be in August, predicated on the thought Germany will fold up by October or November—or maybe sooner. (And won't that be a grand and glorious day?) The cutting down of war orders is going to cause lots of confusion and add many problems for United States industry and the Government. It may be, the Government will try to avoid as many press notices on the subject as possible, and on the other hand they would like industry to know the score so they can plan to take care of their affairs with the least amount of confusion to all concerned.

Of course it would seem to be folly for industry not to plan at this time for conversion to civilian production rather than wait to get this go-ahead signal from Washington. That may be too late. Don't think lots of firms have not already completed their plans. Many are all set to go; in fact, several days ago it was rumored one concern will soon be putting electric refrigerators on the market. This is a forerunner of what will happen. There will be a great scramble and much confusion when the late stragglers realize war orders have come to an end. Some of the alert manufacturers on the West Coast have become alarmed, feeling their war orders will extend for a longer period than those in the East, thereby giving the eastern manufacturers the opportunity to get the jump on them in retooling and converting to civilian production. All of this will bring rise to the problem of unemployment, shifting of employees from one plant to another.

FEEDING EUROPE

The quantity of food necessary to feed underfed Europeans should vary greatly with the concluding of the German war. It should work something like this. If this war ends this fall it will mean United States will face the responsibility of sending large quantities of food to Europe until they can harvest a crop of their own planting. In this direction it is believed we will lend a helping hand toward re-establishing European agriculture by sending large quantities of fertilizer, seeds and machinery.

FOOD SURPLUSES

A minority group seem to hold to the belief we are starting to have a food surplus, but officials of War Food Administration think otherwise. They say it is a mirage reflecting back from a slight invasion hold up. They claim if invasion doesn't proceed rapidly it results in food piling up all along the line of transit back to United States, but the minority group claim we are beginning to develop a definite food surplus. Looks like only time will give the correct answer.

AUTOS JUNKED

It is claimed automobiles are being junked at the rate of 210 per 24 hours per day, seven days a week. This is a sizable number being taken off the highways, which means transportation for individuals will become more acute from day to day. On the other side of the ledger, the junking of autos should mean more gasoline continually for those still having autos to operate.

SURPLUS MATERIALS AND READJUSTMENTS

Here is a rough and quick idea on surplus materials and readjustments. When Germany calls it a day and gives up, United States will cancel war contracts right and left. In the meantime Congress is moving along very slowly with regard to post-war planning and industry largely will be caught unprepared to take care of readjustment. While industry will be breaking their necks to get into civilian products, heavy unemployment will take place. Local committees of CED (Committee for Economic Development) are doing more than any one other group to formulate plans to help cushion the shock that is bound to come. If you want information on how CED works, write Committee for Economic Development, 285 Madison Avenue, New York 17, N. Y. They have some fine literature. They will help you form your own local CED.

LABOR

It may be, if the new job-referral plan set up by War Manpower Commission doesn't work in favor of reducing war plant turnover, the Army-Navy may step in with demands that something stronger be devised; for example, use of the draft act or some method with pressure to compel workers to stay in war jobs. Seems a number of war workers have been giving a lot of thought toward post-war jobs.

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More Fall Fertilizer Applications Advised

Feed supplies as well as yields of grain for human and industrial consumption, both highly essential in the war food program, could be increased considerably by proper use of fertilizers during the late summer and fall, specialists of the War Food Administration declare. Since no additional land would be needed and little additional labor, these increased yields would contribute to greater productive efficiency on most farms.

With prices of fertilizers now low in relation to prices of most farm products, the specialists add that it will pay to use more of these materials than is generally used. Moreover, fall is the best time to get needed fertilizer supplies since it is usually the slack time in fertilizer sales and distribution. In support of their ideas on increasing yields through fall applications of fertilizers, the War Food Administration officials point to results obtained by research scientists of the Department of Agriculture and State experiment stations as well as to actual farm experiences.

In many places in the far West and other sections of the country experimental results have shown worthwhile yields of both hay and seed from an application equivalent to 125 to 150 pounds of triple superphosphate to the acre on alfalfa. The favorable effects also extend over a period of years. On the basis of the experiments a net increase of a ton of hay from use of the equivalent of 100 pounds of triple superphosphate can reasonably be expected. Where soils are deficient in potash, adequate amounts of this element should be applied with the superphosphate.

On fall-seeded small grains the results of an extensive farm-to-farm survey show that an average increase of 8.5 bushels of wheat from application of 200 pounds of medium mixed fertilizer is not unusual. Experimental results from several States also bear out these farm experiences. Winter pasture from fall-seeded small grains can also be increased by application of nitrogen and of mixed fertilizers which also contribute to the yield of grain harvested the following spring.

Abundant research data are also available showing that the use of fertilizer on winter legume cover crops results in an appreciable increase in plant growth which, when turned under, is reflected in greater yields of succeeding crops. In Alabama, for example, the use of 375 pounds of superphosphate or 375 pounds of superphosphate and 50 pounds of

muriate of potash per acre increased the yield of vetch grown as a green manure crop more than three times as compared with plots on which no fertilizer was applied. Yield of corn immediately following the vetch was also increased an average of more than 11 bushels per acre on four of the major soil types of the State without the use of additional fertilizer.

The War Food Administration specialists also add that the fall of the year is a good time to supply phosphate to alfalfa meadows, new seedings of red clover, and other meadows.

May Sulphate of Ammonia

According to the figures of the U. S. Bureau of Mines, production of by-product sulphate of ammonia continued at the rate of 2,250 tons per day, which is the level reached during April. Shipments dropped to 50,974 tons, compared with 64,937 tons in April. As a consequence, stocks on hand at the end of the month rose to 45,236 tons, an increase of 70 per cent over April 30th figures. By-product ammonia liquor continued at about 90 tons a day. Because of lack of storage facilities, shipments of this material are usually about equal to production each month.

	Sulphate of Ammonia	Ammonia Liquor
Production	Tons	Tons NH_3
May, 1944	69,728	2,737
April, 1944	67,661	2,680
May, 1943	64,286	2,928
January-May, 1944	339,532	13,530
January-May, 1943	316,710	14,164
Shipments		
May, 1944	50,974	2,527
April, 1944	64,937	2,618
May, 1943	67,138	2,987
Stocks on Hand		
May 31, 1944	45,236	731
April 30, 1944	26,598	662
May 31, 1943	20,198	827
April 30, 1943	23,585	728

Campbell to Head Canadian Fertilizer Council

Grant J. Campbell, Manager of Summers Fertilizer Co., St. Stephen, N. B., plant was recently elected President of the Maritime Fertilizer Council at a meeting held at St. John, N. B. The council consists of manufacturers doing business in the Maritime Provinces. Mr. Campbell was formerly of Baltimore, Maryland, and has been Summers' Canadian Manager for the past seven years.

Changes in Ashcraft-Wilkinson Officers

On July 11th, the Ashcraft-Wilkinson Company, of Atlanta, announced the election of Lee Ashcraft to the office of Chairman of the Board, and of George W. McCarty to the office of president. Mr. Ashcraft is one of the original founders of the company and has served as president for several decades. Mr. McCarty held the position of vice-president, prior to his elevation to the presidency. Both gentlemen have taken an active part in the affairs of the industry and their wide circle of friends extend their best wishes for increased success in their new offices.

Bemis Plant Awarded Army-Navy "E"

At a colorful ceremony on June 29th, the East Pepperell, Mass., plant of Bemis Bro. Bag Co. received the Army-Navy "E" Award. In addition to meeting the general production standards for which this award is given, the Bemis organization met a specially difficult problem in producing special bags for war purposes. In presenting the "E" flag, Brigadier General Alden H. Waitt, of the Chemical Warfare Service, described the job which had to be done, as follows:

"Let me go over your record with you, for I want you to know what a swell job you have done. Let me tell you why I say that they typify the best of American production in this war. First, you got started promptly. I am told that within an hour after a telephone call was received from the Boston Chemical Warfare Procurement District advising you to go ahead on production, you were turning out bags. Not your normal peacetime production of small food bags, but heavy bags for war purposes. These required a much heavier type of paper and different adapters on your machine, yet you went ahead and did the job.

"Next let's take the change over of your plant to care for these war orders. I am told that you designed a new sewing table so that handling could be done entirely by women; that you made your own automatic wax dip tanks; that you set up a sewing operation to cut down on the number of employees that were needed; that you used power trucks operated by women and boys to save handling; and that you made special packing jigs to eliminate handling.

"In all this conversion for war production you did not buy a single piece of new equipment, but used parts from obsolete machinery,

and assembled them to make the equipment you needed.

"Here are a number of things rolled in one. You adapted your plant to war production yet you did not put a strain on the already heavy demand for new equipment. You also made large savings in manpower, which was and is perhaps our scarcest item.

"Then you saw the obligation to save critical materials as resting on industry. I understand that you stopped using carbon tetrachloride, which is relatively scarce. Not satisfied with these advances you have also aided the technical staff of the Chemical Warfare Service in the improvement of our gas resistant sack by the substitution of a new crepe paper closure which is stronger and better.

"There are two other factors that deserve very special mention in connection with your record. First is the fact that of all the millions of Bemis bags that have gone to war there has not been a single rejected shipment. This is a wonderful record. The second point is that you have met schedules and have put yourself out to help your friends.

"The original contracts placed by CWS in 1942 required huge quantities within a short time to meet blitz shipments. You met this and all your other calls besides. In order to do it, you doubled your hourly unit production. At the beginning of this year your plant already had a full production schedule without a Chemical Warfare Service contract. But to help us, you took on our work since you were familiar with it. In order to do this your company had to cut back other subcontracts with Bemis plants in other parts of the country and to refuse additional contracts.

"These production miracles produced by your voluntary work out of conviction not coercion and your excellent labor-management relations show us better than words or laws the kind of society we are fighting for. It is inspiring to find this spirit burning in New England—always the great stronghold of freedom in our country—always defiant of old world dictators."

Standard Chemical to Rebuild Acid Plant

Standard Chemical Co., Inc., of Troy, Alabama, will rebuild its sulphuric acid plant, largely destroyed by a tornado last spring. Andrew M. Fairlie, consulting chemical engineer of Atlanta, is in charge of the design. Mills-Packard water-cooled chambers embodying the latest patented features and capable of operating at from 2.5 to 3 cubic feet of chamber space per pound of sulphur burned per day, will be one of the main features of the new plant.

May Sulphur Production

Production of native sulphur in May, 1944, continued on the upward trend initiated in January, according to figures released by the Bureau of Mines, United States Department of the Interior. Sales were even greater than production, and stocks were reduced by 44,796 long tons during the month. Although stocks have been gradually declining since January, 1943, they are still approximately as large as the average reserve carried by the industry from 1935 to 1941. The figures, in long tons, are as follows:

Period	Production	Mine shipments	Producers' stocks*
April, 1944.....	271,903	278,311	4,244,827
May, 1944.....	278,751	365,543	4,200,031
April, 1943.....	212,385	275,069	5,043,363
May, 1943.....	232,637	244,142	4,988,230

*Producers' stocks at mines, in transit, and in warehouses at end of period.

BRADLEY & BAKER

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504 Merchants Exchange Bldg., St. Louis, Mo.

FERTILIZER MATERIALS MARKET

NEW YORK

Better Balance Between Supply and Demand in Materials Market. Added Superphosphate Production Facilities Will Aid Phosphate Supply. Imports of Phosphate Rock Reported. Notable Increase in Potash Production Program.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, July 25, 1944.

During the past week there has been some falling off of interest on the part of raw materials buyers with the exception of a very keen and continued interest in the purchase of organics. The chemical picture shows supply and demand of practically all commodities being about in balance, but organics are still short and from all indications will remain short throughout the ensuing year. Generally speaking, prices remain at established ceilings.

Superphosphate

Recent expansions in this industry have taken care of immediate and nearby needs. There seems to be only one exception to the rule that supply equals demand, there still being considerable movement of ordinary superphosphate from Southern producing plants to the Middle West, in which latter territory there has been a greater increase in demand than anywhere else in the country. It is felt, however, with the current production program and several projected increases, that demands by fertilizer manufacturers plus those by AAA and Lend-Lease can be taken care of.

Triple Superphosphate

Because of Lend-Lease commitments and continued labor problems, this commodity is in short supply. However, here again now projected plants which are expected to go into operation by late fall or early winter will considerably relieve the situation.

Phosphate Rock

Production continues at maximum plant capacities, but productions are being hampered by labor difficulties. Prices for domestic materials remain at ceilings recently established by WPB. Imports from Africa continue, and there is now projected some sizable import to Northern ports, and for which, it is understood, ODT has fixed the vessels. This importation in addition to current domestic productions should take care of all needs.

Potash

Approximately 125,000 tons additional K_2O must be produced during the current fertilizer year if the several producers are to meet the government request for an approximate 20 per cent increase in the new season as against production of the past season. Manufacturers are lending every effort toward that end, and it is believed will accomplish their purpose if their labor problems can be solved. It would appear that stocks plus expected production will very nearly meet full demands and prices remain at established ceilings.

Sulphate of Ammonia

Largely because of an indication that ammonium nitrate will not be in as great supply as anticipated, there has been a great deal of interest on the buyers' part in securing full supplies of the sulphate. Interest is active, and as far as can be determined, all the buyers for Period 4 have been able to cover their expected needs at regular established ceilings.

Fish Meal

The fishing season along the Atlantic Coast has shown vast improvement in the quantity of catches and considerable amounts have been received at central distributing and processing points, such as Baltimore. There seems no chance that any fish meal will reach the fertilizer industry as the shortage in the feed trade is such as to absorb all expected productions. Again, the prices that can be obtained in the feeding industry are such that, unless under very unusual circumstances, the fertilizer man could not afford to pay.

Tankage

Some recent imports from South America plus considerable additional material to be

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Sandusky, Ohio
Wilmington, N. C.

imported has eased the shortage situation somewhat, but the amounts have not been sufficient to have a serious effect. Therefore, demand continues considerably in excess of supply. Ceiling prices in all cases are being retained, and all animal tankages are being completely absorbed in the feed industry. Only leather tankage and similar articles are or will probably go to the fertilizer industry.

Organics

All products in this category, such as bone meal, castor pomace, nitrogenous, etc., are in short supply and from all indications this situation will continue throughout the fertilizer year.

BALTIMORE

Preparations for Fall Season Under Way. Few Organic Materials Priced in Fertilizer Range. Increase in Superphosphate Ceiling.

Exclusive Correspondence to "The American Fertilizer"

BALTIMORE, July 25, 1944.

Fertilizer manufacturers in this section are now preparing for the fall season which is usually light as compared with spring season's business.

Ammoniates.—Offerings of organics are slightly more plentiful but ceiling prices are considerably higher than fertilizer manufacturers can afford to pay for use in their mixtures except in a limited way.

Castor Pomace.—There are still no offerings on the market, and producers are still fairly well sold up and not taking on any further business except from regular customers.

Fish Scrap.—There are reports of further sales at ceiling prices booked "subject to catch" and for shipment "if and when made." Practically the entire production of Chesapeake Bay fish will go into manufacture of feeding materials on account of the ceiling price fixed for this material.

Sulphate of Ammonia.—There is no change in the situation and deliveries are still being made under allocations.

Nitrate of Soda.—There is likewise no change in the market for this material and present demand about seasonal.

Superphosphate.—OPA granted an increase of 1 cent per unit of A. P. A. earlier in the modth, making the present price 65 cents per unit, in bulk, f. o. b. producers' works, Baltimore, which will partly offset increased cost of production.

Potash.—Practically all manufacturers have now contracted for their season's requirements and are taking equal monthly deliveries in order to secure the benefit of lowest market prices.

Bone Meal.—Both raw and steamed bone meal continues scarce and offerings are at a minimum.

Bags.—The market on burlap bags for fertilizer purposes continues firm. As all importations of burlap are made through government agencies at fixed ceiling prices, no change in the market is expected. Bag manufacturers are looking for an increased demand especially for the next spring fertilizer season.

CHARLESTON

Solution Still Sought for Fertilizer Organics Problem. Higher Price Ceilings on Phosphate Rock and Superphosphate.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, July 24, 1944.

Organics.—There still has not been any improvement in the supply situation on these, although the fertilizer manufacturers are trying to build up the hope that, on account of the government now expecting to take large quantities of ammonium nitrate off the market, something will be done to increase the supply of organic nitrogen.

Ammonium Nitrate.—There is more interest on this on account of rumors that there will be a shortage later in the season.

Manufacturers' Sales Agents for DOMESTIC

Sulphate of Ammonia

Ammonia Liquor :: Anhydrous Ammonia

HYDROCARBON PRODUCTS CO., INC.

500 Fifth Avenue, New York

Sulphate of Ammonia.—There is a strong interest in this material, and there does not seem to be any difficulty in disposing of any quantities offered.

Phosphate Rock.—Market on this is firm at the recently increased prices. None of the producers is showing any disposition to shade ceiling figures.

Superphosphate.—OPA has issued an order allowing an increase of 2 cents per unit of available phosphoric acid for Savannah and Charleston, making the new ceiling 57 cents per unit at sellers' plants.

PHILADELPHIA

Better Supply of Organic Materials but Prices Too High for Fertilizer Use. Greater Inquiry for Sulphate of Ammonia.

Exclusive Correspondence to "The American Fertilizer"

PHILADELPHIA, July 24, 1944.

In the past couple of weeks there has been a little easing in the supply of organics but sellers still ask, and most times receive, the ceiling prices. The better supply of organics is attributed to the situation in the feed trade, and some in that trade expect a tightening position again by fall.

Ammoniates.—As already mentioned, there has been a little better position in the supply position of organics, but this affects chiefly the feed trade, since prices are still holding at or near ceiling levels, which are generally considered somewhat too high for fertilizer use. The inorganic materials continue under allocation, so that these move in more or less routine manner.

Sulphate of Ammonia.—Thinking that there may be a shortage of nitrates, there is some inquiry for this material, subject, of course, to the allocation regulations.

Nitrate of Soda.—This material has fairly well settled into a definite groove, being under allocation and fixed price.

Superphosphate.—Deliveries are delayed in some cases, as the demand is good and the labor situation hinders production.

Bone Meal.—A slightly better supply prevails, but prices are still firm.

Potashes.—Still moving in good quantity under allocation.

Castor Pomace.—Demand good and supply light.

CHICAGO

Fertilizer Organics Being Allocated by Sellers. Feed Material in Good Demand but Lower Prices Wanted.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, July 24, 1944.

Inquiries for organics continue, but offerings are slow in appearing on the market. Sellers are attempting fair allocation of their productions, which seem at present inadequate to the demand.

Wet and dry rendered tankage for feed are in good demand, though there is developing an insistence for price concessions. Ceilings, however, are fairly well maintained.

Ceiling prices are:

High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, $5.53 per unit ammonia ($6.72 per unit N); blood, $5.53 ($6.72 per unit N); dry rendered tankage, $1.25 per unit of protein, f. o. b. producing points.

TENNESSEE PHOSPHATE

Dry Weather Hits Corn Crop. Mining Operations Continue at Top Levels. Labor Shortage Hinders Shipments.

Exclusive Correspondence to "The American Fertilizer"

COLUMBIA, TENN., July 24, 1944.

The weatherman has given this fair region ample samples of all the varied summer weather the record shows can be experienced here during the past two weeks, from 100° in the shade to 54° during one night, a low record for July.

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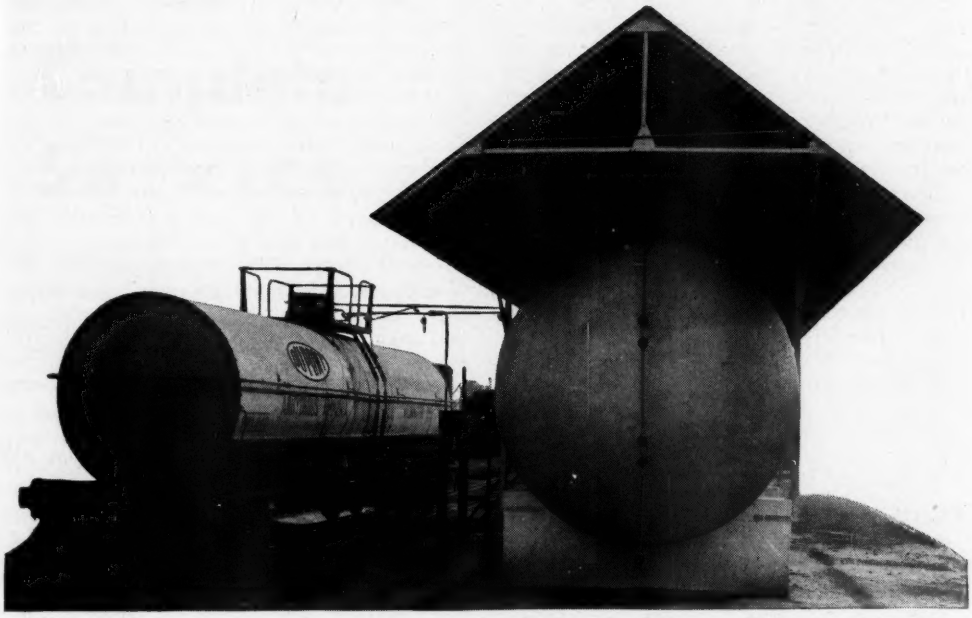

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Work of all kinds is progressing rapidly from outside phosphate mining and construction work of all kinds and farm work, generally. Threshing of small grain is completed and some fields of tobacco will soon be cut, while many others are slow in getting safely out of the ground. Corn is badly cut for lack of moisture, both the early plantings and the late plantings, so a rather poor prospect exists for that crop so important to this region.

Shipments are active into all lines of consumption, with movement to the farmer trade for direct application continuing to maintain full activity in spite of the postponement of orders by many in the corn belt who from long custom have for years made the peak business in that line fall in March–April and August–September. Serious breakdown in the bagging and loading end of one plant caused heavy falling off in ability to make bagged shipments, but the tonnage was almost kept up by a large number of farmers taking requirements in bulk in the emergency.

Farmers May Follow Experiment Station Recommendations in Using Fertilizers

Reflecting prospects for somewhat larger supplies of fertilizer in the year beginning July 1, 1944, particularly phosphates and potash, the War Food Administration has eliminated crop classifications and made several other changes in its fertilizer order. The changes are embodied in War Food Order No. 5, Amendment No. 1, revising and amending the order in its entirety.

In the year beginning July 1st, all general crops may be fertilized with as many pounds of fertilizer per acre as recommended by the appropriate State experiment station. There will be no A and B crop classes as there have been this year. In the past year a farmer could apply fertilizer at the rate recommended by the State experiment station in growing any crop in the A classification, but not in growing any other general crop unless the customary rate equalled that recommended by the station. "Customary" rate of application was considered to be the farm operator's customary rate, or the customary rate used on a particular farm, or the customary rate on comparable farms in the area.

In no case did the order permit a higher rate of application than that recommended by the State experiment station. In the year ahead, for any particular crop farmers may use fertilizer at the rate recommended by the experiment station or at the rate customarily used in the area, whichever is greater.

The rate of application per acre, as used in the order, refers to pounds of fertilizer but does not specify plant food content in terms of nitrogen, phosphoric acid, and potash.

Elimination of the crop classification will permit a higher rate of application on a large number of crops. The A group included only peanuts, hybrid corn for seed production, sugar beets for seed production, hemp, dry and snap beans, lima beans, cabbage, carrots, onions, green peas, dry edible peas, potatoes, sweet potatoes, sweet corn for processing, tomatoes and vegetable seeds.

The amendment also makes the following changes:

1. The special application form is no longer required, provided the dealer's regular order form carries specified information and is signed by the customer.

2. Each manufacturer, dealer, and agent is required to make available for direct application or home mixing as great a percentage of his supply of each fertilizer material as he delivered for those uses from his 1940–41 or 1941–42 supply, whichever is greater. This was not required during the past year.

3. In producing specialty fertilizers, manufacturers may use as much nitrogen and potash as they used for the same purpose in the year ended June 30, 1943, or the preceding year. This past year they could use 50 per cent of the nitrogen and potash used in specialty fertilizer during the year ended June 30, 1942. Next season, manufacturers of specialty fertilizers may not use a greater quantity of organic nitrogen than they used during the 1943–44 season. Specialty fertilizer is prepared for use on lawns, shrubbery, trees, flowers, bulbs, parks, roadsides, cemeteries, golf courses, trees and other ornamental plants.

4. For the commercial production of flowers, bulbs, shrubs, trees, and ornamental plants, the amounts of fertilizer (in terms of nitrogen

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Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
East St. Louis, Ill.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Montgomery, Ala.
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No. Weymouth, Mass.
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Pierce, Fla.
Port Hope, Ont., Can.
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Spartanburg, S. C.
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Laurel, Miss.
Montgomery, Ala.
Montreal, Quebec, Can.
New York, N. Y.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can
Savannah, Ga.
Spartanburg, S. C.
Wilmington, N. C

and potash) that may be used by any person, or delivered to him, are restricted to the amounts used by the consumer for the same purposes in the year ended June 30, 1943, or the preceding year, whichever is greater.

This past year the limit was 75 per cent of the total quantity of fertilizer (in terms of nitrogen, available phosphoric acid, and potash) used during the year ended June 30, 1943, or the preceding year.

5. The rules for labeling Victory Garden fertilizer are changed slightly. Other provisions of Amendment No. 1 are substantially the same as those of the original order.

Fire at V-C Birmingham Plant

A fire on July 8th destroyed three of the five mixing units of the Virginia-Carolina Chemical Corporation plant at Birmingham, Ala. The sulphuric acid plant was not damaged. Plans are being made to rebuild the damaged portion of the plant as speedily as materials can be obtained.

January-March Potash Deliveries Increased

The American Potash Institute announces that total deliveries of potash salts within the continental United States, Canada, Cuba, Puerto Rico and Hawaii by the five major producing companies during the first quarter of the calendar year 1944 amounted to 425,751 short tons of salts, equivalent to 214,496 tons of actual K_2O. Constituting this total were 391,795 tons of salts, equivalent to 193,331 tons K_2O designed for agricultural use, made up of 260,586 tons of muriate, 94,739 tons of manure salts, and 36,841 tons of sulphates. For chemical use deliveries amounted to 33,956 tons of salts, equivalent to 21,164 tons K_2O. These figures include salts of domestic origin only.

Compared with the first quarter of 1943, these deliveries represent increases of 29,329 tons K_2O, or 18 per cent for agricultural potash and 32,307 tons K_2O, or 18 per cent for all potash delivered during the corresponding period a year ago.

	Jan.-March, 1944	Jan.-March, 1943
Muriate	156,132	137,464
Manure Salts	23,454	15,284
Sulphate and Sul. Pot. Mag.	13,746	11,255
Total Agricultural	193,332	164,003
Chemical Potash	21,164	18,186
Grand Total	214,496	182,189

POST-WAR RELATIONS BETWEEN GOVERNMENT AND INDUSTRY

(Continued from page 7)

farmer than the TVA's emphasis on a single plant food, phosphorus.

"Obviously, a fundamental decision remains to be made as to the future method of conducting the Authority's fertilizer activities. The present quasi-developmental status can hardly be maintained indefinitely. There appears to be no doubt that the TVA is in the field of phosphate production to stay, and after the war it will have available the additional facilities constructed for war purposes."

As Mr. Pritchett spent three or four years in the employ of the TVA, then returned to the University of Chicago and wrote his book and published it, I think we may consider his statement fairly authoritative. If we have any doubts, they might be at least partly removed by the knowledge that during the past year TVA has obtained title to additional phosphate rock reserves in Tennessee estimated at more than 6,000,000 tons. This raises the total reserve supply of rock in the Authority's possession to 28,000,000 tons, enough to last 130 years at its present rate of mining.

Many in this audience remember the earnest, determined, and open fight our industry made against the projection of the old Muscle Shoals plant into the fertilizer industry. Those efforts were successful for a time. At any rate, when Dr. Harcourt Morgan, as the agricultural member of the Tennessee Valley Authority, led in prescribing a policy for that body, the nitrate phases of the project were dropped and the whole effort was turned to superphosphate. This was quite a surprise to some in view of the fact that from the beginning of the superphosphate industry that was based upon phosphate rock, the United States has been the world leader. This leadership began in the late 60's and early 70's of the previous century.

The TVA's plans and ambitions are expanding. It is said to have a total of nearly 100,000 employees. It takes about 120 pages in its last annual report merely to list its employees who receive a salary of $1,500 a year or more. War has afforded an opportunity for its reaching out again into the nitrogen fixation field. Its modern ammonium nitrate plant has a capacity of 150 tons a day, or nearly 50,000 tons a year of nitrogen as such. Most of its production last year went for war materials, but some 6,000 tons of ammonium nitrate and ammonia liquor were distributed to farmers in the Authority's test demonstration program. During the present year a con-

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Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

AMERICAN POTASH & CHEMICAL CORPORATION
122 East 42nd ST., NEW YORK CITY
Pioneer Producers of Muriate of Potash in America

See Page 4

siderable quantity of TVA nitrogen was sold, through an unnecessarily created agency, for use on commercial crops.

The trend in the superphosphate field can be sensed easily from the fact that TVA has purchased a site for a phosphate plant at Mobile, Alabama, outside the Tennessee Valley area, and has all plans and specifications drawn for immediate construction. This plant would have been constructed ere this except for the fact that the War Production Board declined to grant the necessary priorities during the war emergency, apparently on the ground of the lack of necessity for this extension of Government construction.

TVA is also encouraging other sections of the United States to demand that the Government develop projects similar to TVA in other sections of the country, such as Idaho, near the inter-mountain phosphate deposits, and Washington, in the area where the Grand Coulee Dam is capable of furnishing a tremendous amount of electric power.

3. Problems Involving Post-War Operation or Disposal of Government Controlled Production Facilities.

In our eagerness not to fall short in our production program of nitrogen carriers for munitions of war, nine or ten synthetic ammonia plants were authorized. They are owned by the Government but operated by a number of the strongest chemical-producing corporations of the nation. How many of them have been actually needed and put into operation I cannot say but I do know that their combined production capacity for a 300-day year was in excess of 700,000 tons.

About ten privately owned plants exist in the United States with a capacity of more than 500,000 tons a year.

Combined synthetic ammonia capacity of the privately owned and United States Government-owned plants, if they were all to operate at their original rates of capacity, totals considerably more than a million tons of N per year. You can see what this means when I remind you that the total consumption of nitrogen as fertilizer in 1943 with the prodigious food production program that was then carried on was only 460,000 tons. It is estimated that 600,000 to 625,000 tons will be used this year. Normal consumption could obviously be furnished by the private plants of the United States, with such reasonable imports from Chile as might be necessary to satisfy the long-existing demand for nitrate of soda. One of our big private plants produces a large supply of synthetic sodium nitrate.

All of the foregoing takes no account of the world-wide extension of nitrogen synthesis that the war has caused. Along our border on the Canadian side there are at least three ammonium nitrate plants—yearly capacity about 120,000 tons of N—so deployed as to make easy the penetration of the American market with the aid, in part, of a Government-owned railway.

It is freely estimated that we have in the United States $16,000,000,000 worth of war-plant investment. Only a small fraction of this relates itself to our industry—nitrogen and sulphuric acid plants chiefly. Recently 35,000 business executives were polled on how much the nation will recover per dollar on this investment. The answers indicate that only 37 per cent of the total plant is adapted to peace uses and that the Government is likely to recover only 27 cents on the dollar. What this may mean to ultimate competition, even under the most favorable conditions, is not hard to envisage.

(To be continued in the next issue)

PLANNING FOR POST-WAR AGRICULTURE

(Continued from page 10)

Try as I may, I cannot erase from my memory a picture I once saw of a gaunt, lean mother walking down the lane with deep gullied fields on each side and a worn shack in the background. The mother was leading a thin-faced, rickety child into the setting sun. There, it seemed to me, was the whole story of exhausted people and exhausted soils. There was the careless and indifferent past and a hopeless and fading future—a warning for the guardians of our soil to heed.

I know this idea of a direct connection between a nation's well being and its soils is not new to you people. It has been present at least in the back of the minds of all of us who have to do with building and maintaining our land heritage. But like many other fundamentals of life, this idea often gets shoved into the background while more immediate considerations crowd the front of the stage. But we should never really forget that our treatment of our soils is determining the kind of bodies and minds for generations to come.

Those of us who are custodians of the soil, therefore, have a fearful responsibility—a responsibility that should make some of our present worries look small indeed.

May I repeat, I am confident that the members of this organization who have so effectively contributed to our production for war will make an even greater contribution to our soil needs in times of peace.

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BUYERS' GUIDE • A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"

This list contains representative concerns in the Commercial Fertilizer Industry, Including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc.
For Alphabetical List of Advertisers, see page 33.

ACID BRICK
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

ACID EGGS
Chemical Construction Corp., New York City.

ACIDULATING UNITS
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMO-PHOS
American Cyanamid Co., New York City.

AMMONIA—Anhydrous
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA LIQUOR
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA OXIDATION UNITS
Chemical Construction Corp., New York City.

AMMONIATING EQUIPMENT
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMONIUM NITRATE SOLUTIONS
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

AUTOMATIC ELEVATOR TAKEUPS
Sackett & Sons Co., The A. J., Baltimore, Md.

BABBITT
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Bagpak, Inc., New York City.
Bemis Bro. Bag Co., St. Louis, Mo.
Norfolk Bag Co., Norfolk, Va.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill.
Union Bag & Paper Corporation, New York City.

BAGS—Cotton
Bemis Bro. Bag Co., St. Louis, Mo.
Norfolk Bag Co., Norfolk, Va.
Textile Bag Mfrs. Association, Chicago, Ill.

BAGS—Paper
Bagpak, Inc., New York City
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Union Bag & Paper Corporation, New York City.

BAGS (Waterproof)—Manufacturers
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill,
Union Bag & Paper Corporation, New York City.

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Huber & Company, New York City.
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McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

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Bagpak Inc., New York City.
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BAGGING MACHINES—For Filling Sacks
Atlanta Utility Works, East Point, Ga.
Bagpak, Inc., New York City.
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Sackett & Sons Co., The A. J., Baltimore, Md.

BAG PILERS
Link-Belt Company, Philadelphia, Chicago.

BEARINGS
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

BELT LACING
Sackett & Sons Co., The A. J., Baltimore, Md.

BELTING—Chain
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

BELTING—Leather, Rubber, Canvas
Sackett & Sons Co., The A. J., Baltimore, Md.

BOILERS—Steam
Atlanta Utility Works, East Point, Ga.

BONE BLACK
American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Huber & Company, New York City.

BONE PRODUCTS
American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
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Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

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American Potash and Chem. Corp., New York City.
Pacific Coast Borax Co., New York City.

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Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Dickerson Co., The, Philadelphia, Pa.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
Keim, Samuel L., Philadelphia, Pa.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BUCKETS—Elevator
Link-Belt Company, Philadelphia, Chicago
Sackett & Sons Co., The A. J., Baltimore, Md
Stedman's Foundry and Mach. Works, Aurora, Ind

A Classified Index to Advertisers in "The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the Advertisers. see page 33

BUCKETS—For Hoists, Cranes, etc., Clam Shell, Orange Peel, Drag Line, Special; Electrically Operated and Multi Power
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.

BURNERS—Sulphur
Chemical Construction Corp., New York City.

BURNERS—Oil
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.

CABLEWAYS
Hayward Company, The, New York City.

CARBONATE OF AMMONIA
American Agricultural Chemical Co., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.

CARS—For Moving Materials
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CARTS—Fertilizer, Standard and Roller Bearing
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

CASTINGS—Acid Resisting
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.

CASTINGS—Iron and Steel
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CEMENT—Acid-Proof
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

CHAIN DRIVES—Silent
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAINS AND SPROCKETS
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAMBERS—Acid
Chemical Construction Corp., New York City
Fairlie, Andrew M., Atlanta, Ga.

CHEMICAL APPARATUS
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

CHEMICALS
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
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Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Huber & Company, New York City.

CHEMICALS—Continued
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

CHEMICAL PLANT CONSTRUCTION
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C
Chemical Construction Corp., New York City.
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Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

CLUTCHES
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Stedman's Foundry and Mach. Works, Aurora, Ind.

CONCENTRATORS—Sulphuric Acid
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

CONDITIONERS AND FILLERS
American Limestone Co., Knoxville, Tenn
Dickerson Co., The, Philadelphia, Pa.
Phosphate Mining Co., The, New York City.

CONTACT ACID PLANTS
Chemical Construction Corp., New York City

COPPER SULPHATE
Tennessee Corporation, Atlanta, Ga.

COTTONSEED PRODUCTS
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Bradley & Baker, New York City.
Huber & Company, New York City
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McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

CRANES AND DERRICKS
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

CYANAMID
American Agricultural Chemical Co., New York City
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Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

DENS—Superphosphate
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Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DRYERS—Direct Heat
Sackett & Sons Co., The A. J., Baltimore, Md.

DRIVES—Electric
Link-Belt Company, Philadelphia, Chicago.

DUMP CARS
Link-Belt Company, Philadelphia, Chicago.
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Stedman's Foundry and Mach. Works, Aurora, Ind.

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Sackett & Sons Co., The A. J., Baltimore, Md.

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Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ELEVATORS AND CONVEYORS—Portable
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

ENGINEERS—Chemical and Industrial
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ENGINES—Steam
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

EXCAVATORS AND DREDGES—Drag Line and Cableway
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.

FERTILIZER MANUFACTURERS
American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Company, Columbus, Ohio.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

FISH SCRAP AND OIL
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

FOUNDERS AND MACHINISTS
Atlanta Utility Works East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GARBAGE TANKAGE
Wellmann, William E., Baltimore, Md.

GEARS—Machine Moulded and Cut
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GEARS—Silent
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

GELATINE AND GLUE
American Agricultural Chemical Co., New York City.

GUANO
Baker & Bro., H. J., New York City.

HOISTS—Electric, Floor and Cage Operated, Portable
Hayward Company, The, New York City.

HOPPERS
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

IMPORTERS, EXPORTERS
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

IRON SULPHATE
Tennessee Corporation, Atlanta, Ga.

INSECTICIDES
American Agricultural Chemical Co., New York City.

LACING—Belt
Sackett & Sons Co., The A. J., Baltimore, Md.

LIMESTONE
American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C
Wellmann, William E., Baltimore, Md.

LOADERS—Car and Wagon, for Fertilizers
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Coal and Ash Handling
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying
Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Grinding and Pulverizing
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind

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MACHINERY—Tankage and Fish Scrap
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MANGANESE SULPHATE
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MIXERS
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Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

NITRATE OF SODA
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

NITRATE OVENS AND APPARATUS
Chemical Construction Corp., New York City.

NITROGEN SOLUTIONS
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

NITROGENOUS ORGANIC MATERIAL
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
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Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
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NOZZLES—Spray
Monarch Mfg. Works, Philadelphia, Pa.

PACKING—For Acid Towers
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

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Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Virginia-Carolina Chemical Corp. (Mining Dept.), Richmond, Va.
Wellmann, William E., Baltimore, Md

PIPE—Acid Resisting
Duriron Co., Inc., The, Dayton, Ohio.

PIPES—Chemical Stoneware
Chemical Construction Corp., New York City.

PIPES—Wooden
Stedman's Foundry and Mach. Works, Aurora, Ind.

PLANT CONSTRUCTION—Fertilizer and Acid
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

POTASH SALTS—Dealers and Brokers
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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

POTASH SALTS—Manufacturers
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PULLEYS AND HANGERS
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

PUMPS—Acid-Resisting
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Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

PYRITES—Brokers
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

QUARTZ
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

RINGS—Sulphuric Acid Tower
Chemical Construction Corp., New York City.

ROUGH AMMONIATES
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McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
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SEPARATORS—Including Vibrating
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SEPARATORS—Magnetic
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Link-Belt Company, Philadelphia, Chicago.
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SHOVELS—Power
Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers
Monarch Mfg. Works, Inc., Philadelphia, Pa.

SPROCKET WHEELS (See Chains and Sprockets)

STACKS
Sackett & Sons Co., The A. J., Baltimore, Md.

SULPHATE OF AMMONIA
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
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SULPHUR
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Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

SULPHURIC ACID
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Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M. Charleston, S. C.

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Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
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McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
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SUPERPHOSPHATE—Concentrated
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International Minerals & Chemical Corporation, Chicago, Ill
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp Tampa, Fla.

SYPHONS—For Acid
Monarch Mfg. Works, Inc., Philadelphia, Pa.

TALLOW AND GREASE
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TANKAGE
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
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Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Wellmann, William E., Baltimore, Md.

TANKAGE—Garbage
Huber & Company, New York City.

TANKS
Sackett & Sons, Co., The A. J., Baltimore, Md.

TILE—Acid-Proof
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

TOWERS—Acid and Absorption
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

UNLOADERS—Car and Boat
Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

UREA
DuPont de Nemours & Co., E. I., Wilmington, Del.

UREA-AMMONIA LIQUOR
DuPont de Nemours & Co., E. I., Wilmington, Del

VALVES—Acid-Resisting
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

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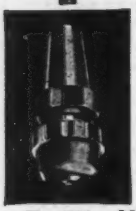

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See Catalog 6-C

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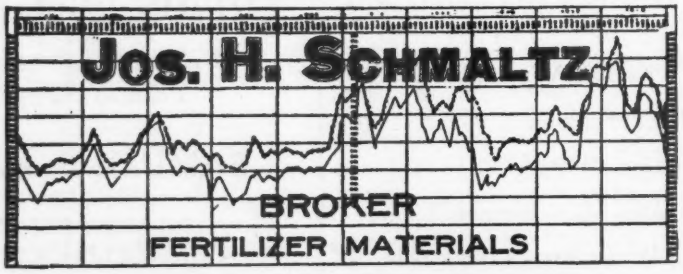

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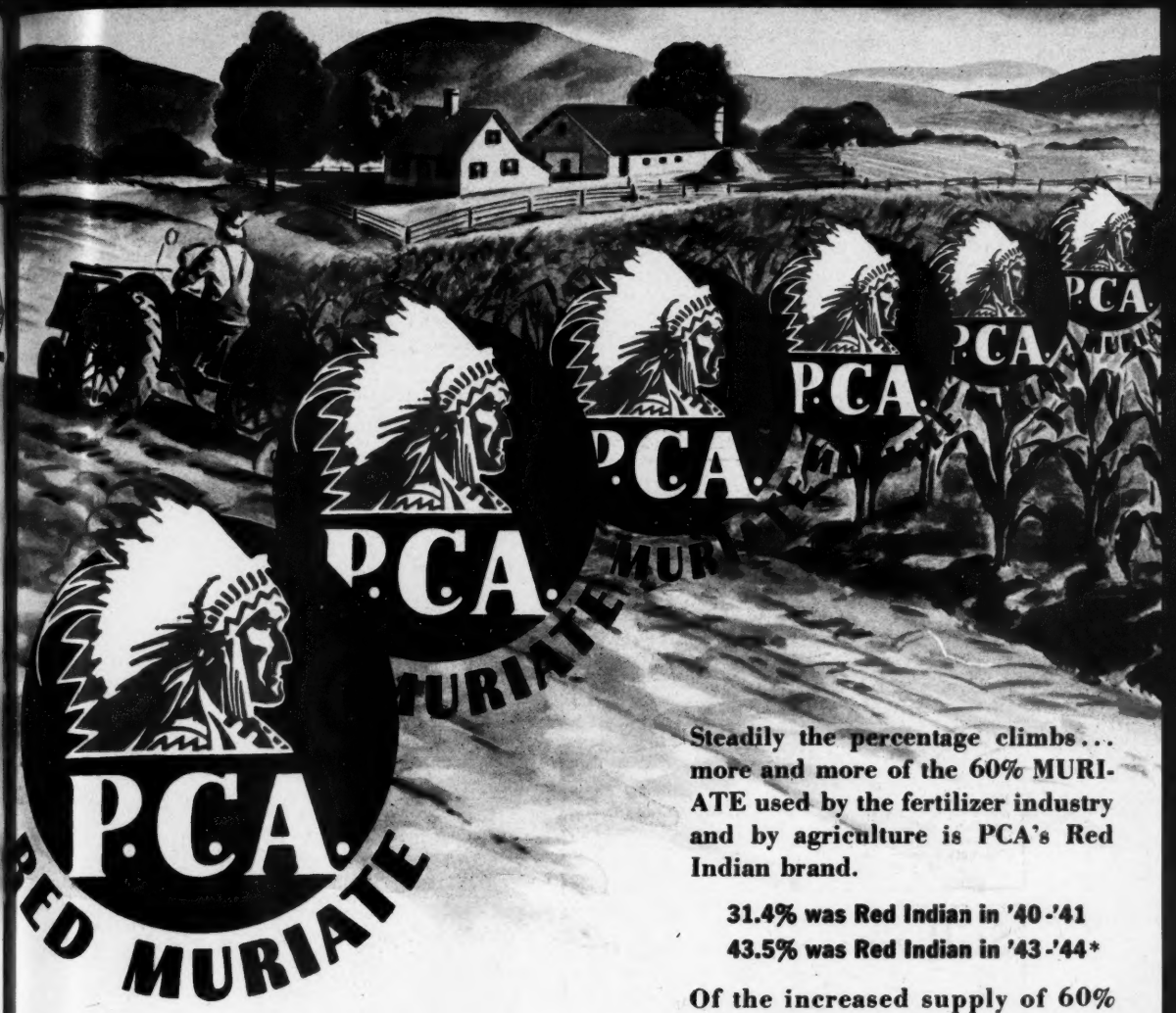

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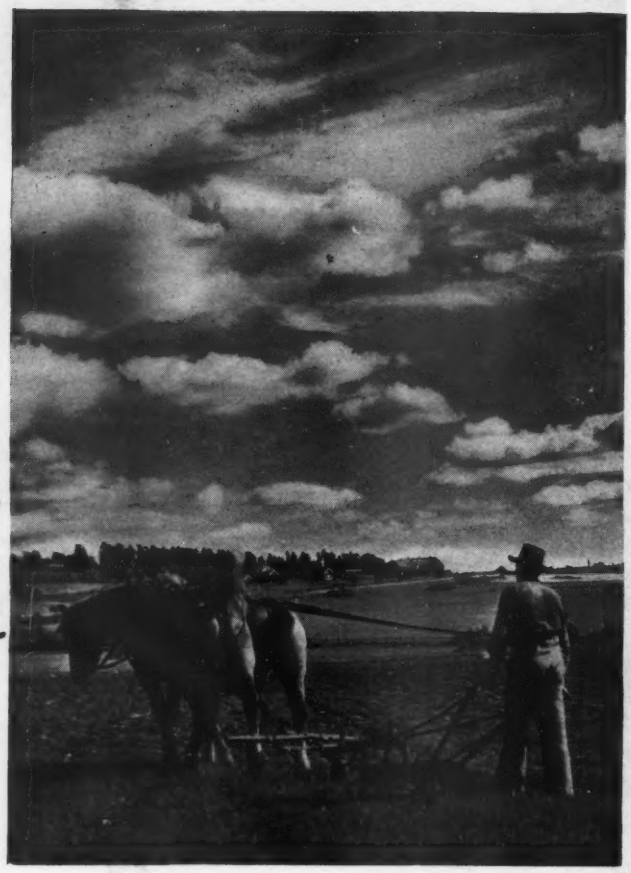

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